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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/619,577

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Yasuo Fujii

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EXAMINER

MOUTTET, BLAISE L

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/619,577	Applicant(s) FUJII ET AL.	
	Examiner Blaise L Mouttet	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/22/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The foreign priority papers were received December 22, 2003.

Information Disclosure Statement

2. The IDS filed September 22, 2003 has been considered by the examiner.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference signs mentioned in the description:

706a as mentioned on page 12, line 24 of the specification,

5000 as mentioned on page 22, line 27 of the specification.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference characters not mentioned in the description:

240 in figure 1,

201 and 202 in figures 2A, 2B and 3,

5003, 5010 and 5014 in figure 5.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), and/or appropriate amendments to the specification, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should

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include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 4 is objected to because in lines 8-9 "input unit" should more properly read --input line-- in accordance with the antecedent basis of claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Imanaka et al. US 6,243,111 B1.

Imanaka et al. discloses, regarding claim 1, an ink jet head substrate (figure 1) having a plurality of heating elements (401) and an input line (line extending from contact 411) for inputting a pulse width regulating signal regulating a width of a drive

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pulse to be applied to the heating elements (401) on a base substrate (400) (column 3, lines 40-42, column 6, line 61),

wherein a logic circuit (102) for supplying the drive pulse to be applied to the heating elements (401) at staggered timing is provided on the input line for inputting the pulse width regulating signal (as taught in column 5, lines 49-65 the staggered timing is preferably 10-200 nanoseconds between heating elements).

Regarding claim 2, the substrate further comprises:

a driver (402) which drives the plurality of heating elements (401) according to image data (column 3, lines 39-40);

a block selection unit (405) for dividing the plurality of heating elements (401) into blocks for a predetermined number of heating elements to drive the heating elements in a time division manner with the divided block as a unit (column 3, lines 42-46);

a drive control logic (403, 404) which controls a drive signal to be given to the driver (402); and

a hysteresis circuit (101) which is provided in an input portion of the drive control logic (403, 404) and makes an input data threshold value different at rising and falling (column 4, lines 4-9).

Regarding claim 6, the substrate is combined with a member (502) to form an inkjet head with liquid paths (505) and discharge ports (500) (figure 5).

Regarding claims 7 and 8, the inkjet head is combined with means for conveying a print medium (P) relative to the head (column 7, lines 63-67) and a carriage (620) that detachably mounts the head to form an inkjet print apparatus (figure 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imanaka et al. US 6,243,111 B1 in view of Ghozeil et al. US 6,375,295 B1.

Imanaka et al. discloses the subject matter of claim 1 as explained in the 35 USC 102 rejection above.

Imanaka et al. discloses, regarding claim 4, that the substrate includes a serial input/parallel output shift register (404) and a latch circuit (403) temporarily storing data output from the shift register (404), and the heating elements (401), the driver (402), the

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input line, the block selection unit (405), the shift register (404) and the latch circuit (403) are formed on the substrate (figure 1) and the logic circuit (102) is formed by a film forming process identical with that for the drive control logic including the shift register (404) and latch circuit (403) (column 6, lines 57-64).

Imanaka et al. fails to disclose, regarding claims 3-5, that the logic circuit (102) comprises CMOS inverters of even number stages arranged serially.

Ghozail et al. provides teachings relevant to control circuits for driving ink jet heaters (column 1, lines 6-20) and teaches that when forming delay circuitry (such as logic circuit 102 of Imanaka et al.) CMOS inverters of even number stages (figure 7) provide advantages of reduced size and contribute to the reduction of electromagnetic interference between drive elements (column 1, lines 52-55, column 4, lines 30-47).

It would have been obvious to a person of ordinary skill in the inkjet art at the time of the invention to use the CMOS inverter delay logic as taught by Ghozail et al. in place of the buffer delay logic elements in logic circuit 102 taught by Imanaka et al.

The motivation for doing so would have been to achieve advantages of reduced size and reduction of electromagnetic interference as taught by column 1, lines 52-55 and column 4, lines 30-47 of Ghozail et al.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet who may be reached at

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telephone number (571) 272-2150. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier, Art Unit 2853, can be reached at (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet October 7, 2004

Blaise Mouttet 10/7/2004